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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,428	10/28/2002	Steven J. Knapp	245-62504	6911

24197 7590 10/07/2004

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EXAMINER	
ROBINSON, KEITH O NEAL	

ART UNIT	PAPER NUMBER
1638	

DATE MAILED: 10/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/089,428	KNAPP ET AL.	
	Examiner	Art Unit	
	Keith O. Robinson, Ph.D.	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *5,6,19-22 and 27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-18 and 23-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *March 29, 2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-4, 7-18, and 23-26, drawn to meadowfoam plants and methods of making said plants.

Group II, claim(s) 5-6, 19-22, and 27 drawn to meadowfoam oil.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The inventions are linked by the technical feature of low erucic acid content in the oil produced by meadowfoam plants. However, this feature is not special because it does not constitute an advance over the prior art. Knapp et al (Industrial Crops and Products 4: 219-227, 1995) teach low erucic content in the oil produced by meadowfoam plants (see page 222, Table 2).

Because the inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter and fields of search, restriction for examination purposes as indicated is proper.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under CFR 1.17(i).

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

During a telephone conversation with Tanya Harding, Ph.D. on September 7, 2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-4, 7-18, 23-26. Affirmation of this election must be made by applicant in replying to this Office action. Claims 5-6, 19-22, and 27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112, first paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 7-18, and 23-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims are drawn to meadowfoam plants with low erucic acid, methods of making said plants, and parts thereof.

Since the seed is essential to the claimed inventions, it must be obtainable by a repeatable method set forth in the specification or otherwise be readily available to the public. If the plant is not so obtainable or available, the requirements of 35 U.S.C. 112 may be satisfied by a deposit of the plant. The specification does not disclose a repeatable process to obtain the plant and it is not apparent if the plant is readily available to the public. Thus, a deposit is required for enablement purposes. It is noted that Applicant has deposited the meadowfoam plant, but the deposit conditions are not specified. A deposit of 2500 seed of each of the claimed embodiments is considered sufficient to ensure public availability. If the deposit is made under the terms of the Budapest Treaty, then an affidavit or declaration by applicants, or a statement by an attorney of record over his or her signature and registration number, stating that the specific strain has been deposited under the Budapest Treaty and that the strain will be

irrevocably and without restriction or condition released to the public upon the issuance of a patent, would satisfy the deposit requirement herein.

If the deposit has not been made under the Budapest Treaty, then in order to certify that the deposit meets the criteria set forth in 37 C.F.R. 1.801-1.809, applicants may provide assurance of compliance by an affidavit or declaration, or by at statement by an attorney of record over his or her signature and registration number, showing that

(a) during the pendency of this application, access to the invention will be afforded to the Commissioner upon request;

(b) all restrictions upon availability to the public will be irrevocably removed upon granting of the patent;

(c) the deposit will be maintained in a public depository for a period of 30 years or 5 years after the last request or for the effective life of the patent, whichever is longer;

(d) a test of the viability of the biological material at the time of deposit (see 37 C.F.R. 1.807)l and,

(e) the deposit will be replaced if it should ever become inviable.

Claims 1-4, 7-18, and 23-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The claims are broadly drawn to

meadowfoam plants having seeds that contain a low erucic acid content, hybrids thereof, and methods of making and identifying such plants.

Claims 1-4 are broadly drawn to any meadowfoam plant of any *Limnanthes* species that produces seed that has an erucic acid content not more than 3 or 5% by weight. There is no description in the specification of any meadowfoam plant that produces seed with an erucic acid content not more than 3 or 5% by weight in terms of its genetic, morphological, and/or physiological composition. There is no description of the parents of the claimed plant in terms of their genetic, morphological, and/or physiological background nor is there a description of the steps used in the derivation of the claimed plant. The specification only describes the mutagenesis of the meadowfoam cultivar "Mermaid" (see page 9, lines 21-22 of the specification).

Claims 7-12 are broadly drawn to a method of making and identifying a low erucic acid mutant meadowfoam plant by the contact of any meadowfoam seeds with any mutagen (claims 7-8) or wherein the mutagen is either ethyl methanesulphonate (claims 9 and 10) or gamma radiation (claims 11 and 12). The specification does not describe any meadowfoam plant in terms of its genetic, morphological, and/or physiological composition. The specification only describes the use of the meadowfoam cultivar "Mermaid" subjected to ethyl methanesulphonate as a mutagen (see page 9, lines 21-22 of the specification). There is no description in the specification as to the genetic, morphological, and/or physiological composition of the mutagenic plants derived from the claimed methods. Furthermore, the genetic makeup of "Mermaid" has not been described. It is even unclear to which *Limnanthes* species "Mermaid" belongs.

Claim 13 is broadly drawn to a method of producing low erucic acid oil by growing a meadowfoam plant and extracting oil from the seeds of said plant. The claim seems to infer the extraction of oil from any meadowfoam plant having erucic acid content lower than 5% by weight. The specification does not disclose any meadowfoam plant having erucic acid content lower than 5% by weight. There is no description in the specification as to the genetic, morphological, and/or physiological composition of any meadowfoam plant used in the method. There is no description in the specification as to how many generations the meadowfoam plant will be grown in order to produce a meadowfoam plant with low erucic acid oil.

Claims 14-16 and 24 are broadly drawn to any meadowfoam plant which has a "characteristic" property and the method of using said plant. The specification does not give a description of the claimed plant in claim 14 in terms of its genetic, morphological, and/or physiological composition. Furthermore, the other plant in claim 24, used to cross with the uncharacterized plant of claim 14, has not been described in terms of its genetic, morphological, and/or physiological composition. Moreover, there is no description of the other plant used in claim 24 as to if it is of the same species as that of the uncharacterized plant of claim 14 or if it is a plant from a different genus altogether.

Claims 17-18 and 25-26 are broadly drawn to hybrid plants and seeds thereof of derived from the crossing of meadowfoam plant PTA-2338 with any other meadowfoam plant. The specification does not give a description of the other plant used in the derivation of the claimed hybrids in terms of its genetic, morphological, and/or physiological composition. Since all meadowfoam plants will vary in their genetic,

morphological, and/or physiological composition, the genetic, morphological, and/or physiological background of the hybrid seeds or plants derived from such a cross have not been adequately characterized. Furthermore, the seed in claims 18 and 26 read on F2 seed so any plants derived from such seed would have 25% homozygous genotypes of the deposited plant, 50% heterozygous meadowfoam plants, and 25% homozygous genotypes of the other parent based on a single gene model and the heterozygous genotypes; however, the homozygous genotypes of the other parent have not been characterized in the specification.

Claim 23 is broadly drawn to a method of producing a low erucic acid plant by crossing a hybrid meadowfoam plant with any other meadowfoam plant and screening the progeny for low erucic acid. The specification does not describe the other parent of the hybrid meadowfoam plant used in the cross, as discussed above, nor does it describe the other parent used in the cross with said hybrid in terms of their genetic, morphological, and/or physiological composition.

The Federal Circuit has recently clarified the application of the written description requirement. The court stated that a written description of an invention "requires a precise definition, such as by structure, formula, [or] chemical name, of the claimed subject matter sufficient to distinguish it from other materials". University of California v. Eli Lilly and Co., 119 F.3d 1559, 1568; 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). The court also concluded that "naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not description of that material". Id. Further, the court held that to adequately describe a claimed genus, Patent

Owner must describe a representative number of the species of the claimed genus, and that one of skill in the art should be able to "visualize or recognize the identity of the members of the genus". Id.

See MPEP Section 2163, page 156 of Chapter 2100 of the August 2001 version, column 2, bottom paragraph, where it is taught that

> [T]he claimed invention as a whole may not be adequately described where an invention is described solely in terms of a method of its making coupled with its function and there is no described or art-recognized correlation or relationship between the structure of the invention and its function. A biomolecule sequence described only by a functional characteristic, without any known or disclosed correlation between that function and the structure of the sequence, normally is not a sufficient identifying characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence.

Given the failure of the specification to describe the claimed plant, methods of using it are also inadequately described. Accordingly, one skilled in the art would not have recognized Applicants to have been in possession of the claimed invention. See the written description guidelines published in Federal Register/ Vol. 66, No. 4/ Friday January 4, 2001/ Notices: pp. 1099-1111.

Claims 1-4, 7-18, and 23-26 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims are broadly drawn to meadowfoam plants having seeds that contain a low erucic acid content, hybrids thereof, and methods of making and identifying such plants.

Claims 1-4 are broadly drawn to any meadowfoam plant of any *Limnanthes* species that produces seed that has an erucic acid content not more than 3 or 5% by weight. There is no guidance provided in the specification of any meadowfoam plant that produces seed with an erucic acid content not more than 3 or 5% by weight in terms of its genetic, morphological, and/or physiological composition. There is no guidance as to the parents of the claimed plant in terms of their genetic, morphological, and/or physiological background nor is there a description of the steps used in the derivation of the claimed plant. The specification only gives guidance for the mutagenesis of the meadowfoam cultivar "Mermaid" (see page 9, lines 21-22 of the specification); therefore, one skilled in the art would not know how to make and/or use the claimed invention.

Claims 7-12 are broadly drawn to a method of making and identifying a low erucic acid mutant meadowfoam plant by the contact of any meadowfoam seeds with any mutagen (claims 7-8) or wherein the mutagen is either ethyl methanesulphonate (claims 9 and 10) or gamma radiation (claims 11 and 12). The specification does not give guidance to any meadowfoam plant in terms of its genetic, morphological, and/or physiological composition. The specification only gives guidance for the mutagenesis of the meadowfoam cultivar "Mermaid" subjected to ethyl methanesulphonate as a mutagen (see page 9, lines 21-22 of the specification). Furthermore, the genetic makeup of "Mermaid" has not been provided. It is even unclear to which *Limnanthes* species "Mermaid" belongs. Therefore, one skilled in the art would not know how to make and/or use the claimed inventions.

Claim 13 is broadly drawn to a method of producing low erucic acid oil by growing a meadowfoam plant and extracting oil from the seeds of said plant. The claim seems to infer the extraction of oil from any meadowfoam plant having erucic acid content lower than 5% by weight. The specification does not give guidance as to any meadowfoam plant having erucic acid content lower than 5% by weight. There is no guidance provided in the specification as to the genetic, morphological, and/or physiological composition of any meadowfoam plant used in the method. There is no guidance given in the specification as to how many generations the meadowfoam plant will be grown in order to produce a meadowfoam plant with low erucic acid oil; therefore, one skilled in the art would not know how to use the claimed invention.

Claims 14-16 and 24 are broadly drawn to any meadowfoam plant having a "characteristic" property and the method of using said plant. The specification does not provide guidance for the claimed plant in claim 14 in terms of its genetic, morphological, and/or physiological composition. Furthermore, the other plant in claim 24, used to cross with the uncharacterized plant of claim 14, has not been described in terms of its genetic, morphological, and/or physiological composition. Moreover, there is no guidance provided for the other plant used in claim 24 as to if it is of the same species as that of the uncharacterized plant of claim 14 or if it is a plant from a different genus altogether. Therefore, one skilled in the art would not know how to make or use the claimed inventions.

Claims 17-18 and 25-26 are broadly drawn to hybrid plants and seeds thereof of derived from the crossing of meadowfoam plant PTA-2338 with any other meadowfoam

plant. The specification does not give any guidance as to the other plant used in the derivation of the claimed hybrids in terms of its genetic, morphological, and/or physiological composition. Since all meadowfoam plants will vary in their genetic, morphological, and/or physiological composition, the genetic, morphological, and/or physiological background of the hybrid seeds or plants derived from such a cross have not been adequately characterized and therefore, it would be unpredictable as to the genetic, morphological, and physiological composition of the hybrids produced from such a cross. Furthermore, the seed in claims 18 and 26 read on F2 seed, so any plants derived from such seed would have 25% homozygous genotypes of the deposited plant, 50% heterozygous meadowfoam plants, and 25% homozygous genotypes of the other parent based on a single gene model and the heterozygous genotypes; however, the homozygous genotypes of the other parent have not been characterized in the specification, therefore one skilled in the art would not know how to use the claimed inventions.

Claims 23 is broadly drawn to a method of producing a low erucic acid plant by crossing a hybrid meadowfoam plant with any other meadowfoam plant and screening the progeny for low erucic acid. The specification does not provide any guidance as to the other parent of the hybrid meadowfoam plant used in the cross, as discussed above, nor does it give any guidance as to the other parent used in the cross with said hybrid in terms of their genetic, morphological, and/or physiological composition.

While the introgression of single genes into plants for a desired trait is desirable and is well within the level of one skilled in the art, the state of the art teaches that it is

unpredictable whether a gene or genes for conferring a phenotype in one plant genetic background may be transferred into the genetic background of another plant to confer the phenotype in said different plant. For example, Hunsperger et al. (US Patent No. 5,523,520) disclosed a specific gene trait in the genetic background of one plant which has been introgressed into the genetic background of another plant of the same species, that did not result in the expected transfer gene trait (see, column 3, lines 26-46). Kraft et al. (Theoretical and Applied Genetics 101:323-326, 2000) teach that linkage disequilibrium effects and linkage drag prevent the making of plants comprising a single transferred trait and that effects are unpredictably genotype specific and loci dependent in nature. Kraft et al. teach that linkage disequilibrium is created in breeding materials when several lines become fixed for a given set of alleles at a number of different loci, and that very little is known about the plant breeding material, and therefore, is an unpredictable effect in plant breeding (see, page 323, column 1, lines 7-15). Eshed et al. (Genetics 143:1807-1817, 1996) teach that epistatic genetic interactions from the various genetic components comprising contributions from different genomes may affect quantitative traits in a genetically complex and less than additive fashion (see, pages 1815-1816). Finally, Dole et al (Plant Breeding 109: 198-202, 1992) teach that epistatic loci control capsule dehiscence in meadowfoam (see page 200, second column).

Furthermore, Pierce et al (Crop Sci. 17: 521-526, 1977) teach that there is significant variation in oil content of meadowfoam across different species and subspecies and that oil content in meadowfoam has a low heritability (see page 521,

Abstract; page 524, Table 2; page 525, first column, second paragraph). Thus, it is unclear that any meadowfoam genotype other than "Mermaid" would be a source of a low erucic acid allele or alleles. It is also unclear whether said alleles would be expressed in non-"Mermaid" genetic backgrounds, or in different species. Robbelen (American Oil Chemist Soc. Monogram 11: 97-105, 1984) teach that mutation breeding for fatty acid content is unpredictable (see page 98, fourth paragraph and page 99, end of second paragraph) and that plants derived from such methods can exhibit reduced performance in one or another trait (see page 100, first paragraph, first sentence).

Neither the instant specification nor the prior art provides evidence that such linkage disequilibrium, linkage drag, or epistatic effects are not common in meadowfoam breeding materials, such that one or more genes can be transferred from one genetic background to another, wherein the resultant meadowfoam progeny would either express the desired trait or maintain all of the other desirable genes and traits as the deposited meadowfoam plant.

Given the lack of guidance in Applicant's specification regarding a multitude of non-exemplified hybrids, single gene conversions, the unpredictability of transferring said genes, and the breadth of the claims, one skilled in the art would not be able to make and/or use the inventions claimed without undue experimentations.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Knapp et al (Industrial Crops and Products 4: 219-227, 1995). The claims read on any meadowfoam plant that produces seed containing erucic acid content of not more than 3-5%, wherein said erucic acid content is a characteristic of deposited line PTA-2338.

Knapp et al teach meadowfoam plants that have seeds with erucic acid levels ranging from 2.3-6.3% (see page 222, first column, second paragraph and Table 2).

Claims 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Fiez et al (Agron. J. 83 : 598-602, 1991). The claims read on any meadowfoam hybrid produced by crossing two meadowfoam plants, wherein the meadowfoam plant deposited as ATCC No. PTA-2338 is used as one parent. Claim 17 reads on F1 hybrids with only half of their genetic complement derived from ATCC No. PTA-2338. Claim 18 reads on F2 plants with as little as 25% of their genetic complement derived from ATCC No. PTA-2338.

Fiez et al teach hybrid meadowfoam plants produced by crossing two different meadowfoam plants (see page 599, column one, second paragraph).

The meadowfoam plants taught by the prior art differ from the claimed meadowfoam plants only in the method of making, namely the use of different meadowfoam plants as parents. However, the method of making the claimed meadowfoam plants would not distinguish it from the prior art meadowfoam plant. See *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985), which teaches that a product-by-process claim may be properly rejectable over prior art teaching the same product produced by a different process, if the process of making the product fails to distinguish the two products. See *In re Best*, 195 USPQ 430, 433 (CCPA 1997), which teaches that where the prior art product seems to be identical to the claimed product, except that the prior art is silent as to a particularly claimed characteristic or property, then the burden shifts to Applicant to provide evidence that the prior art would neither anticipate nor render obvious the claimed invention.

Claims 14-16 and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Fiez et al (Agron. J. 83: 598-602, 1991). The claims are drawn to a meadowfoam plant having a characteristic of deposited line ATCC No. PTA-2338, including meadowfoam type flowers, methods of crossing them, and the resultant hybrids. Fiez et al teach meadowfoam plants with meadowfoam type flowers, methods of crossing them, and the resultant hybrids (see page 599, first column, second paragraph to page 600, first column, first paragraph and Tables 2-3 on page 600).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(a) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 7-18, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knapp et al (Industrial Crops and Products 4: 219-227, 1995), in view of Wong et al (U.S. Patent No. 5,545,821, August 13, 1996).

The claims are drawn to the use of mutagenesis to make low erucic acid mutant meadowfoam plants.

Knapp et al teach the high heritability of erucic acid content in meadowfoam (see page 222, Table 1) as well as substantial genetic variation for erucic acid content in various meadowfoam species and varieties (see page 222, Table 2; page 223, Table 3).

Knapp et al also suggest the use of mutagenesis and selection to lower the erucic acid content of meadowfoam to at most 5% (see page 226, first column, bottom paragraph).

Knapp et al do not actually teach the use of chemical mutagenesis, such as ethylmethanesulfonate (EMS), in lowering erucic acid.

Wong et al teach the use of chemical mutagenesis, such as ethylmethylsulfonate, ethylnitrosourea, etc., in lowering the content of saturated fatty acids such as erucic acid of another oilseed crop, namely canola (column 1, lines 24-45; column 5, lines 27-40).

In view of the fact that meadowfoam is an important oil-producing plant which produces erucic acid that is known in the art to be harmful to the health of humans as well as animals, one of ordinary skill in the art would have been motivated to have used the teaching of Knapp et al's genetic variation for erucic acid content in meadowfoam and combined that with the teachings of chemical mutagenesis to lower erucic acid content of oilseed crops as taught by Wong, as suggested by Knapp et al.

Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith O. Robinson, Ph.D. whose telephone number is 571-272-2918. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, Ph.D. can be reached on 571-272-0804. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 6, 2004

KOR

DAVID T. FOX
PRIMARY EXAMINER
GROUP ~~180~~ 1638